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ABSTRACT

Online searching is now a recognized specialization in library schools, but there are certain problems involved with offering online courses. There is a large amount of material to be covered, especially in one course. Students must learn new concepts and make them work in a machine environment. It is difficult to offer suggestions for a fruitful search when students are stumped at the terminal, because there are many reasons for search failures. Search mechanics are easily taught, but not search concepts, particularly in the absence of an established search theory. Hands-on experience with all major search services and many databases is demanded by students; as a result, library schools cannot offer online courses on a cost recovery basis. The amount of online time available and the utilization of this time have become causes of controversy as the number of databases increases. Instructors of library school online courses should not attempt to replace training by vendors; they should emphasize concepts and principles rather than techniques and tactics. This paper is based on information from the literature of online searching and on the experiences of an instructor, graduate assistants, and former graduates at St. John's University of Jamaica, New York. (Author/ESR)

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THE CHALLENGES, REWARDS, AND PITFALLS IN TEACHING ONLINE SEARCHING

by

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THE CHALLENGES, REWARDS AND PITFALLS IN TEACHING ONLINE SEARCHING

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Abstract

Online searching is now a recognized specialization in library schools. Academic courses will not replace training by vendors but one may supplement the other. Training and educating online searchers is demanding as well as challenging as it requires learning new concepts and making them work in a machine environment. It is quite a battle to overcome when one is stumped at the terminal and is unsure of how to proceed. Search mechanics are easy to be taught but not the concepts especially when there is no established search theory. Students demand hands on experience on all the major search services and expect to be able to use as many data-bases as possible. The amount of online time available is a vexed question but even more serious is the question of the effective utilization of the time mede available. Library schools offering online courses are required to make quite an investment but they cannot do so on a cost recovery basis.

Introduction

Martha Williams in a paper given in 1976 at a European conference observed that computer-readable databases and database use are important and sizeable economic realities and that for the first time in history, computerized generation, processing and retrieval are a significant part of the total information storage and retrieval activity of the western world.[1] The onrush of computer-bases database searching in the late 70's and the early 80's has been unprecedented. Fenichel and Harter[2] in a national survey of online searching instruction in library schools conclude that instruction in online searching today is an integral part of education in library and information science.

There is a proliferation of papers in the professional literature concerning education and training of online searchers. At the time of this writing, the author identified and located about thirty articles on the subject and only six of them dealt exclusively with library school instruction. Of the papers in the latter category, the Fenichel and Harter survey highlights the problems in

Library schools. The others are either general discussions of online education or specific to a library school. In short, little has been written about methodologies, problems and program designs in library schools in teaching online searching.

Based on personal observations and the available literature, it is safe to say that there are a number of different patterns of offering online instruction in library schools. While the patterns are different, a commonality of problems are faced by the instructors. A discussion of these problems in the light of experience at one library school is the subject of this paper. Considerable input has been received from all the Graduate Assistants who have ably helped the author to teach the online courses. Interviews with former graduates in regard to specific questions have been of great value.

The educational process of online searching has been described as consisting of three phases.[3,4] A modified and extended version is offered here. The first phase is the confidence phase. Here the user must come to terms with the machine and the odd language of computer communication. The rigidity of the systems and their complexity do not make it easy for a beginner. The second phase is the insight phase. Here the user is gaining understanding of the system, seeing its power and flexibility as also the potentials. The third stage is the discovery and negotiation phase where one gets to relate a search query to the world of electronic databases. Here one learns to absorb the new technology learnt in phases 1 & 2, becomes familiar with the overall concepts in the design of a given system and its unique features and is able to manipulate the system to do the job for him/her. Finally, there is the take-off phase where one is expected to be on his or her own to do online searching.

In a single online course it is quite a challenge to make headway through all these phases and become an online searcher. The task is compounded by the fact that students expect exposure to more than one vendor and, of course, to as many databases as may be possible. If the online course would have pre-requisites such as Introductory Reference, Introductory Information Science and also Indexing and Abstracting, the task would be relatively easier. But it is not practical to do so. Given the sequence of courses and course offerings in library schools, most students would be ready to graduate by the time they had the pre-requisites out of the way.

After the basics are presented no more than one or at the most two vendors can be covered at length in a single online course. Each vendor requires a somewhat different kind of training, as the command languages are different for each system. For effective online database searching specific information such as coverage, access language, indexing and editorial policies must be fully comprehended. The printed documentation about databases and vendors comprise a valuable component in the instructional process. Such literature is not bibliographically controlled, is not easy to procure and it is not even clear what is needed. Harter[5] in a 1979 article complained about the lack of documentation for many of the databases as well as about the cost of database aids. As he predicted, the situation has gotten worse with the addition of more databases. A considerable number of bibliographic databases are derived from print versions. Familiarity with the print version is a help in comprehending access points of the online database. However, not every library has all the available printed indexes for students to browse through and to gain knowledge of their content and construction. Database search aids that would obviate the need to consult the individual printed sources or specific detailed database tools available for effective searches would be a most welcome development.

Familiarity with any printed source that corresponds with a database has been observed to be of value to a beginner. However, as Caruso[6] points out, indexing and points of access are apt to be different in each, and there are databases that are radically different from their printed progenitors.

It can be quite a challenge to offer suggestions for a fruitful search when a student is stumped at the terminal with null sets or undesired results. A review of the possible reasons for search failures are in order. Listed below are fairly common reasons. For a longer or more complete listing one may benefit from reading articles by Bates[7] and Marshall.[8]

1. Typographical errors.
2. Errors generated by equipment.
3. Inaccurate or inappropriate search strategy.
4. Incomplete search strategy
5. Vocabulary inappropriate to the database.
6. Level of specificity or exhaustivity.
7. Indexing error.
8. Database inadequacies.
9. Failure to cover all reasonable approaches.
10. Subject of the search not applicable to the database.

In our experience we find that in a large number of cases causes of search failures are errors of omission or typographical errors. However, it is one thing to correct mistakes; it is another to help one develop his/her competencies. The basic competencies needed for effective online searching such as knowledge of the system mechanics and database specific information have been mentioned. Prerequisite to these basics is search strategy development or identifying concepts in a retrieval query. During the confidence and insight phases students are overly concerned with the mechanics of operation and are quite cautious to avoid making mistakes. As the familiarity with the system features increases and the user learns to interpret system output, he is ready to make intellectual decisions at the terminal. In other words, the searcher has now transformed himself into phase three. Here the stage is set for discovery and negotiation to determine which combination of search strategies and what modification of terminologies will yield the desired results. It is not enough not to make th kinds of mistakes listed above that result in search failures or even to correct them. Here the searcher may be immersed into the system and communicate with it at a level above and beyond that of just being literal and mechanical. At this point the searcher must be able to recognize any or all information that will contribute to the success of his search, and be prepared to change tactics. There are no stated principles outlining such a process. Yet effective and productive search depend on it. To quote Bates, we cannot yet define what it is that an experienced searcher knows that a beginner does not.[9] Different writers[10,11] have pointed out the lack of a search theory through greater attention to the specifically human and psychological processes.

In the absence of established theoretical foundations for understanding the online search process, effort is made to bring home the point that the search path is formed by a chain of decisions made at the terminal. This path is paved by preparing oneself for the search before getting on the terminal. The searcher's knowledge of the topic or subject of the topic as well as also of the database content and structure have bearing on the retrieval output.

Undoubtedly, practice is the key to the development of search skills. The literature abounds with opinion as to how much practice time is needed for one to be proficient in searching. While the Institute for Library Educators recommended a minimum of five hours[12] practice time for a novice searcher, Fenichel and Harter survey shows[13] that the median number of practice hours in library schools is 4, the mean is 4.6 and the mode is 3 hours. If online time is used

to learn by trial and error, a lot of time would indeed be needed. If properly planned and if students come fully prepared for the work at the terminal, a lot can be accomplished in five hours' connect time. Despite specific instructions and even admonishment for doing so, students tend to design their search strategies at the terminal. The amount of practice time is directly related to the costs of supporting the attainment of these skills. The Institute for Library Educators suggested a budget of $100.00 per student. This may be barely enough to cover the ongoing cost of connect time at the discount rate available for instructional purposes. The cost of terminals and related hardware easily run ito thousands of dollars. Besides the practice time of students, connect time is also needed for training supervisors or student assistants. In addition, Instructors need time to get online to learn new techniques and also to sharpen their skills. Furthermore, lab supervisors, be they student assistants or staff cost money. Thus it comes as no surprise when the Fenichel and Harter[14] survey observes cost to be the highest on the list of perceived barriers to development of online instruction.

One way to reduce the cost of connect time is to record searches on an electronic transferable medium and saving them for repeated use offline. This is not suggested as a substitute for live online hands-on experience. Using the microcomputer technology, repeated demonstration of logon procedures is facilitated at no extra online cost. Saving typical searches for classroom demonstration is quite convenient and useful. This way there is no problem with telephone access or computer downtime or search failure and, of course, it is inexpensive. Using the word processing capability of the micro, the saved searches are edited for clarity. Students prefer this than transparencies or hard copies of examples of searches. However, microcomputer technology is not the answer to the cost problem of online instruction although it helps. Library schools cannot expect to offer online instruction on a cost recovery basis if students are to get sufficient hands-on experience.

How does one balance theoretical discussions, readings and hand-on practice? Since several vendors are expected to be covered in one course, how does one phase them in? Since students appear to be against concentrating on a single database, how does one go about deciding the number and kind of databases to be used? The problem becomes formidable as more and more databases are added. And again it is a truism that databases cannot be taught in a system-independent manner. Fenichel[15] rightly observes that no one person can possibly know more than a small fraction thoroughly enough to search them well. How then does an Instructor chart his

courses. There is an urgent need to formalize experience into guidelines if not sets of principles.

Many of the challenges of offering online searching courses have been noted. It also has its rewards. The interactive nature of the course makes the outcome transparent. Because there are so many different pieces in the search process and because success depends on how they are connected and how they interact, one gets a sense of accomplishment when everything falls into place. Whether as a result of this or otherwise, student evaluations of the course have always been good. Thus it is no mean gratification to be able to offer a course that is satisfying in itself but also is the means for harnessing technology in the furthering of one's professional education.

Conclusion

Teaching online searching has to be clectic. One must be pragmatic and teach around a framework that is flexible. The educational objectives of the course must be clear and shared by the teacher and those taught. The teacher must be prepared to admit and administer changes necessitated by the size and character of the class as also by the availability of the resources. One must not be overly ambitious in one's goals, since the instructor alone cannot do the job.

Online training and education are available in many different forms and by many types of organizations. Among this array the role of the library schools is not clear although professional leaders including Martha Williams have asked library schools to accept the challenge of preparing students "so that they will be of immediate use to organizations involved with automated information processing at all levels"[16] In a review article,[17] Wanger points out that there is a lack of a coordinated approach to online training and education. A distinction between training and education is necessary. Without minimizing the importance of one over the other, it is suggested that educational programs emphasize concepts and principles rather than perfecting the techniques and tactics of searching. Library school courses will not and are not expected to replace those of the vendors and database producers but they may supplement each other, if properly planned. Library school programs in online searching could not have reached their present state without the cooperation and support of the vendors. Much more collaboration is needed to make significant progress. A closer working relationship between the information industry, not just the vendors, and library schools is imperative.

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